



GOVERNMENT OF INDIA
MINISTRY OF TOURISM AND CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)

RAILWAY ACCIDENT INVESTIGATION REPORT

on
ACCIDENT
Caused by
FIRE IN COACH No. NR 1704 TLR
of
4 BRB DOWN PASSENGER TRAIN
between
HISSAR AND JAKHOD KHERA STATIONS,
NORTHERN RAILWAY
on
31ST OCTOBER 1968

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CORRIGENDUM

<u>Page No.</u>	<u>Para No.</u>	<u>Line No.</u>	<u>For</u>	<u>Read</u>
(i)	9	-	operations	operation
2	5	2	it	It
2	5(iv)	3	Constrvction	Construction
3	5(v)	last line	Rweari	Rewari
3	6	3	blackend	blackened
6	11(a)(ix)	4	station	Station
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SUMMARY

1. Date	31-10-1968.
2. Time	About 15.43 hours.
3. Railway	Northern.
4. Gauge	Metre.
5. Location	..	..	..	Km. 151/6-7 between Hissar & Jakhod Khera stations on Rewari-Bhatinda Section.
6. Nature of accident	..	..	..	Fire in a TLR (composite Third, Luggage & Brake-van).
7. Train involved	..	..	..	4 BRB Down Passenger consisting of 7 coaches hauled by YP Engine No. 2316.
8. Speed	..	..	..	About 35 Km.p.h.
9. System of operations	..	..	..	Absolute Block System with Neale's Token Instrument.
10. Number of tracks	..	..	..	Single line section.
11. Gradient	..	..	..	1 in 1000 rising.
12. Alignment	..	..	..	Straight.
13. Weather	..	..	..	Bright & Sunny with a light breeze.
14. Casualties	..	..	..	31 (6 fatal, 9 grievous and 16 minor).
15. Cause	..	..	..	Due to ignition of Kurbi and Sirkanda carried in the Luggage compartment.
16. Responsibility	(a) Unknown passenger who threw live bidi end or match stick inside the compartment. (b) Guard Sohan Lal of 4 BRB Down Passenger for not preventing passengers from travelling in the Luggage compartment.

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MINISTRY OF TOURISM & CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)

From

The Additional Commissioner of Railway Safety,
Northern Circle,
Lucknow.

To

The Secretary to Government of India,
Ministry of Tourism & Civil Aviation,
New Delhi.

(Through : The Commissioner of Railway Safety, Lucknow).

Sir,

In accordance with Rule 10 of the Railway Board's Notification No. 59-TTV/42/1 dated 11th April, 1966, I have the honour to submit the result of my inquiry into the accident caused by fire in Coach No. NR 1704 TLR of 4 BRB Down Passenger Train between Hissar and Jakhod Khara stations on the Rewari Bhatinda section of Bikaner Division of Northern Railway at about 15.43 hours on 31-10-1968.

2. *The Inquiry*—(i) Accompanied by the Assistant Medical Officer, Hissar, I visited the casualties in the Civil hospital on the 2nd evening. I inspected the affected Coach, accompanied by Divisional Officers on the same evening. On the 3rd morning in company with Divisional Superintendent, I inspected the site of the accident. The train crew was also present at the site. On the 3rd afternoon, I again visited the casualties in the Civil hospital and recorded statements of some of them. On the 4th afternoon accompanied by the Divisional Superintendent and Divisional Electrical Engineer, I again inspected the affected Coach. I conducted the speed and visibility tests by 4 BRB Down Passenger also on the 4th afternoon. The composition of this train was almost similar to that of the train involved in the accident. It was drawn by the same Engine which had worked 4 BRB Down passenger on the day of the accident. The train crew accompanied me on this test. I also inspected the rake of 4 BRB Down Passenger, ready to start from Rewari on the 5th morning to ascertain its cleanliness.

(ii) The inquiry was held by me at Hissar on the 3rd and 4th November, 1968. The following Officer was present during the inquiry.

1. Shri O.D. Agnihotri—Divisional Superintendent, Bikaner. Other Divisional and Headquarters officers of the Railway were called in as and when required.

(iii) The District Magistrate, the District Superintendent of Police and the Superintendent of Railway Police were advised about the inquiry, but they were neither present nor represented.

(iv) The evidence of 32 witnesses was recorded.

NOTE :—The terms 'right' & 'left', 'leading' & 'trailing', 'front' & 'rear' are used with reference to the direction of travel of 4 BRB Down Passenger.

3. *The Accident*—The 7 coach, 4 BRB Down Passenger left Hissar at 15.37 hours—its scheduled departure. A few minutes after it started, the fire broke out in the Luggage compartment of TLR 1704. It was a composite third, Luggage and Brake van. This was attached to the train next to the Engine with the Third class compartment leading. There were about 50 passengers travelling in the Luggage compartment. They tried to put out the fire by throwing the burning material out. Some of them also started shouting. However, due to panic, no co-ordinated effort was made to throw out the burning material and the passengers then started jumping out. The shouting which was even then continuing attracted the attention of the Driver. The Driver looked back and saw some passengers jumping out of the Coach. He immediately made an emergency application of the brakes and brought the train to a stand at Km. 151/6-7.

(ii) After the train stopped, the Driver and the Fireman immediately got down and noticed that some luggage in the Luggage compartment of the TLR 1704 was on fire. They extinguished the fire with water from the Engine. In the meanwhile, the passengers were detrained. The smouldering luggage consisting of beddings, vegetable bags etc. was then unloaded. At the same time, the Guard also got down from the Brake-van. He noticed a number of passengers lying injured in the rear of his Brake-van. He immediately handed over the first aid equipment to a Travelling Ticket Examiner, instructing him to render first-aid to those injured passengers. He himself proceeded towards the Engine to ascertain the cause. When he reached the front TLR, he found that the Engine crew had already quenched the fire. He also noticed that there was no derailment and that the train was in a fit condition to move.

(iii) The injured passengers were accommodated in the unaffected coaches of the train. The train was also backed a little and all the injured passengers, lying in the rear, were picked up. The Guard then contacted the control office on his portable telephone and informed about the accident. He also intimated that he was backing the train to Hissar where medical facilities were available. The train was then backed, on the Guard's signal reaching Hissar at 16.40 hours. Immediately on arrival of the train at Hissar station all the injured passengers were given first-aid and refreshment, which had been kept ready. They were then transported in two trucks and two Ambulance cars to the Civil hospital, Hissar for further treatment. The affected Coach was thereafter detached and the train left Hissar on its onward journey at 17.55 hours.

4. *Casualties*—The total number of casualties were 31. Of these, 6 passengers succumbed to their injuries in the hospital at Hissar. Out of the remaining, 9 suffered grievous injuries and 16 minor. All passengers who were admitted in the Civil hospital at Hissar as in-patients have been treated and discharged. As far as the nature of injuries is concerned 9 had suffered injuries due to jumping out of the running train 3 due to jumping out as well as burns and the remaining had received burns only.

5. *The Train and the affected coach*—(i) 4 BRB Down Passenger was hauled by a YP engine No. 2316. It consisted of 7 coaches. The affected Coach No. 1704 TLR was next to the Engine.

(ii) The Engine was manufactured by the TELCO and was put in service in 1956. It was fitted with a Fall Plate Type Spark Arrestor. A speedometer was also fitted in it, but at the time of the accident, it was out of order. It had received its last P.O.H. in Bikaner shops on 12-8-1968 and was not over-due any schedule attention.

(iii) The train was fully vacuum braked and all the vacuum cylinders were in good working order. The brake power was adequate. The length of the train including the Engine was 487 feet and its weight was 298 tonnes. The braking distance for this train at various speeds, calculated on the accepted data, was as follows :—

35 Kms.	615 feet
40 Kms.	700 „
45 Kms.	795 „

(iv) Coach No. 1704 TLR was manufactured by M/s JESSOP & Co., Calcutta and put into service in 1965. The underframe and the trollies were of standard I.R.S. type and the steel body of the Coach was of rivetted construction. The ceiling was of ply-wood. The TLR consisted of a 3rd class compartment having a seating capacity of 32, a Luggage compartment and a Brake-van. Wooden panelling was provided in the Guard's and the 3rd Class compartment. Luggage compartment was provided with sliding steel doors.

in the centre with arrangements for internal and external locking on either side. Its flooring consisted of $\frac{1}{2}$ " thick decolite over wooden floor boards. In addition, wooden slats were fitted over the decolite. It was fitted with wooden slats on the sides. In the leading portion of this compartment, there were 4 racks on the sides and 2 at the end. This portion could be independently looked inside by a collapsible door. The rear portion was provided with 4 racks on the sides and a bullion chest at the end. All the racks had mild steel tubular frames fitted with wooden slats. The wooden slats at the back of the racks were covered with mild steel sheets. The door openings were provided with rubber lining to absorb shocks during closing of the sliding doors.

(v) This was a Generating coach provided with a dynamo and a set of lead acid storage batteries fitted to the under-frame. The wiring from the Generator was taken to the batteries and from the batteries, along the underframe, to a 24 way junction box fitted on the outside of the end panel of the third class compartment. From the junction box, groups of positive and negative wires were segregated and ran along either side of the coach at the roof level. All the light and fan connections were taken from this wiring. Electrically, this Coach was not connected with any other vehicle. The lights and fans were off and, at the time of the accident there was no electrical load on the Coach. The Coach had received its last P.O.H. in Bikaner shops on 22-8-1968. The axle boxes were repacked at Delhi on 29-9-1968 and oiling was done at Rweari on 31-10-1968.

6. *Damage*—The extent of the fire in the Coach was very limited and, therefore, the damage suffered by the Coach was little. The paint of the ply-wood ceiling was slightly blistered and blackened over an area of about 76 Sq. feet. The wooden flooring near the left hand door in the passage was blackened over an area of 12 Sq. feet. The paint of the wooden slats on the under-side of the front left hand luggage rack was slightly blistered. The rubber lining of the left hand door opening was burnt upto a height of about 4 feet from the floor level. The paint of the sliding door was slightly blistered and blackened over a little area of about 1 Sq. foot. Similarly, the paint on the outside of the mild steel cover over the electrical wire conduit on the left hand side was slightly blistered. There was no damage to any other rolling-stock, Engine, Permanent Way or other Railway property. The cost of damage was estimated at Rs. 50.

II. RELIEF

7. (i) As soon as the train came to a stop at Km. 151/6-7, the Guard noticed a number of injured passengers lying in the rear of the train. He immediately handed over the first-aid box to a Travelling Ticket Examiner, who was travelling in his Brake-van, to render first-aid to the injured. The Guard then proceeded towards the Engine and found that the fire had been put out by the Engine Crew. He, therefore, decided to back it to Hissar.

(ii) The control informed Hissar station about the accident and instructed the Assistant Station Master to keep a line ready to receive 4 BRB Down Passenger back at his station and also to arrange all the medical facilities to treat the injured. Before the train arrived, the Assistant Traffic Superintendent, who was present at Hissar, got 4 rooms—Inspector's room, Gents' Upper Class Waiting Hall, Ladies' Upper Class Waiting Hall and the A.R.M.E. room—vacated and ready for receiving the injured passengers. The Assistant Medical Officer, Hissar came to the platform alongwith his staff and got all the necessary equipment for rendering first-aid ready. Two private Practitioners were requested to come to the station to render medical assistance and they too had arrived at the platform. The Civil hospital authorities were intimated of the accident and were requested to send Ambulances and Doctors to the station. The train reached Hissar at 16.40 hours. Immediately on arrival, the injured passengers were taken to the rooms kept ready and were given first-aid by the Doctors, who were already present on the platform. They were also given refreshment and then sent to the Civil hospital, Hissar by two trucks and two Ambulance Cars. The first truck left the station at 17.15 hours, and others followed in a few minutes. By 17.50 hours, all the injured passengers were despatched to the Civil hospital and those requiring hospitalisation were admitted for further treatment. The Railway authorities then contacted the Civil hospital to find out if any aid in the form of personnel or medicines was required by the Civil hospital and were informed that the Civil hospital was fully equipped and no assistance from the Railways was required. I visited the patients and found that they were progressing satisfactorily.

8. *Restoration*—There was no derailment nor any damage to the permanent way or any other equipment. The section was, therefore, available for normal working as soon as 4 BRB Down Passenger was taken back to Hissar at 16.40 hrs.

III. LOCAL CONDITIONS

9. (i) The direction of the line is from South-east to North-west.

(ii) There are 15 to 17 telegraph posts per kilometre. The kilometrage of various stations mentioned in the report is reckoned from Rewari—

Rewari	::	::	0·00
Satrod ..	::	::	131·92
Hissar ..	::	::	142·56
Site of accident ..	::	::	151/6-7TP
Nyoli Kalan Halt	::	::	152·60
Jakhod Khera ..	::	::	158·56
Bhatinda	::	::	299·89

(iii) The section from Rewari to Bhatinda is under the jurisdiction of Bikaner Division. The Headquarters of Bikaner Division is at Bikaner and the control office for this section is at Rewari.

(iv) The accident occurred at Km. 151/6-7 approximately 8·85 Kms. from Hissar. The country-side is flat agricultural land. The height of the bank between Hissar and the site of the accident varied from 1 to 6 feet. At the place where the train had come to a stop after the accident, the height of the bank is about 1 foot.

(v) There is no manned Level Crossing in the vicinity of the site of the accident.

(vi) After leaving Hissar, the line runs straight upto Km. 150/7 where it takes a short 1° left handed curve upto Km. 150/10-11. From Km. 150/10-11, upto the point where the train had come to a stop, the line is again straight. After Hissar, a train has to negotiate a few gradients, up and down, varying between 1 in 200 to 1 in 1000. From Km. 150/4-5, there is a rising gradient 1 in 1000 and it continues beyond Km 151/6-7 where the train came to a stop.

(vii) The track at the site consists of 60 lbs F.F. rail 39 feet long laid on N+3 C.S.T. 9 sleepers per rail length. It is provided with 7 cubic feet of broken stone ballast per foot run.

(viii) The maximum permissible speed of the section is 65 Km. p.h. The booked speed for 4 BRB Down Passenger was 50 Km. p.h. There was no permanent or temporary speed restriction in Hissar-Jakhod Khera section.

(ix) At the time of the accident, the speed of the train was 35 Km.p.h.

(x) The seating capacity of the train was 348, but it was estimated that, at the time of the accident, 750 passengers were travelling in the train. The train was over-crowded due to the short composition. The normal load of this train is 9 bogie coaches but on the day of the accident, it was running with only 7 bogie coaches due to shortage of stock at Rewari. Approximately 50 passengers were travelling in the Luggage compartment of Coach No. 1704 TLR.

(xi) The weather was bright and sunny with a light breeze from right to left. The visibility was clear.

IV. INSPECTION AND TEST

10. (i) I inspected Coach No. 1704 TLR at Hissar and found that the Luggage compartment had suffered slight damage due to fire. The damage was mostly confined to the blackening of a portion of the ceiling and the floor and blistering of paint of the Luggage racks and the sliding doors.

(ii) The battery, the dynamo, the undergear, the 3rd Class compartment and the Guard's Brake-van were completely unaffected.

(iii) The dynamo, the battery and the electrical connections were also carefully examined. It was noticed that the fuses provided were of the correct size and all the wire connections were well made. The wiring together with the fuses, thimbles and connections did not show any sign of heating. In fact, the wiring was in as good a condition as when the Coach was built. There were no patch repairs in the wire runs.

(iv) The axle boxes were properly oiled, and the front pads were in position and not charred. There was no evidence of any overheating in the axle boxes.

(v) The examination of the Luggage compartment showed that the fire started at the left hand side of the passage between the two doors towards its leading end. It was confined to that area and had not spread to any other part of the Coach.

(vi) The luggage unloaded from the Coach and the debris in it were minutely examined. It was found that there was presence of Sirkanda (a kind of willow used for thatching huts—*Erianthus Munja*) and Kurbi (dry stock and leaves of Jawar or Maize used as fodder—*Sorghum vulgare* or *Zea Mays*) in the debris. There were also a number of half smoked bidis and burnt match-sticks lying in the compartment.

(vii) I conducted the braking distance and visibility tests by 4 BRB Down Passenger on the 4th after noon. It was drawn by the same Engine and had almost similar composition to the train involved in the accident. The train crew of the train involved in the accident accompanied me in the cab and were instructed to repeat exactly what they did on the day of the accident. It was found that the maximum speed attained was 52 Km.p.h. at Km. 146. The Driver closed the regulator at about Km. 150/10-11 because the train was booked to stop at Nyoli Kalan Halt which was at Km. 152.6. He then applied his emergency brakes at Km. 151/3-4 and the train came to a stop at Km. 151/6-7. The speed of the train when the Driver made the emergency application of the brakes on the test train, was observed to be approximately 35 Km.p.h.

(viii) The evidence of the injured passengers indicated that the fire was noticed by them when the train was in the vicinity of Km. 146/3. The test train took approximately 5½ minutes to travel the distance from Km. 146/3 to 151/6-7 where it came to a stop.

(ix) The Driver of the train was taken on Motor trolley during my inspection and was asked to point out the place where he had seen the passengers jumping out of the train and where he had made the emergency application of the brakes. It was found that the distance between the place where the Driver had noticed the passengers jumping out and the place where the train had come to a stop was about 650'.

(x) I inspected the rake of 4 BRB Down Passenger which was ready on the Washing line at Rewari on the 5th morning. I found that it was properly cleaned and swept. I particularly inspected the Luggage compartment and found that there were no bidi ends, match-sticks or any other rubbish lying in the compartment.

V. SUMMARY OF EVIDENCE

11. (a) Railway officials—

(i) *Shri Lachmi Narain, Driver* stated that the train left Hissar at 15.37 hours. At Km. 150/12, he shut down the regulator as he was approaching Nyoli Kalan Halt where he was booked to stop. Shortly thereafter, he heard people shouting and looking in the rear saw passengers jumping out from the next coach. He immediately made an emergency application of the brakes and brought his train to a stop at Km. 151/5 (the verification at site however showed that the engine came to a stop at Km. 151/6-7). He then proceeded towards the rear and found the Luggage compartment on fire. He immediately quenched the fire with water from the Engine. The smouldering luggage was then unloaded. The train was thereafter slightly moved back to pick up the injured passengers who were lying in the rear. The control was then informed about the accident by the Guard and the train was backed to Hissar on the Guard's signal reaching there at 16.40 hours. According to him, when he made the emergency application of the brakes, the speed of the train was about 35 Km.p.h. His Engine was fitted with spark arrestor and the coal did not emit sparks on the run. The damper was also closed. He had sufficient brake power available and the brakes were in good working order. He had no difficulty in controlling his train anywhere on the run. He checked the alarm chain apparatus at the site and found that it had not been pulled from any of the coaches. He stated that the fire was located near the left hand door of the Luggage compartment towards the Engine and was due to hay or fodder.

(ii) *Shri Shambhoo Dayal, Fireman, Grade 'B'* stated that the Driver suddenly applied his brakes after passing the curve (Km. 150/10-11) and instructed him to look back to find out the trouble. He saw smoke coming out of the Coach behind the Engine. He estimated the speed of the train to be about 30 Km.p.h. at the time of the accident. He stated that no sparks were coming out of the chimney.

(iii) *Shri Bharat Singh, Fireman, Grade 'C'* stated that the fire damper was closed and the Engine was not emitting any spark. He was positive that the fire damper was closed because he had closed it before leaving Hissar.

(iv) *Shri Sohan Lal, Guard 'B', Rewari* stated that the train arrived Hissar at 15.25 hours and left at 15.37 hours—right time. All of a sudden, the train stopped with his Brake-van at Km. 151/5-6. As soon as the train stopped, he noted the time to be 15.48 hours. Immediately he got down and saw some passengers lying injured in the rear of the train. He handed-over his first-aid box to Deep Singh, Travelling Ticket Examiner who was travelling in his compartment and instructed him to render the first-aid to the injured passengers. He himself proceeded towards the front of the train. When he reached the front TLR, he found that fire had broken out in the Luggage compartment but it had been put out by the Engine Crew. He stated that there was a fire extinguisher in his Brake-van, but there was no occasion to use it. He was not aware of Circular No. 98T-O/67 of 7th April, 1967 of the Bikaner Division which requires the Wards to secure empty Luggage compartments so that unauthorised persons may not be able to enter the same. He was aware of Rule No. 4015B (xiv) of the Operating Manual which lays down that the Guard shall keep windows and ventilators, of all carriages running empty, closed and doors key locked. He was also aware of G.R. 16 & 19 of Part II of General and Subsidiary Rules prohibiting passengers from travelling in compartments not meant for them and the Guards' duties in this connection. However, he stated that it had not come to his notice that passengers were travelling in the Luggage compartment of the front TLR.

(v) *Shri Deep Singh, Travelling Ticket Examiner, Rewari* stated that he rendered first-aid to 13 passengers at the site.

(vi) *Shri J.P. Mittal, Train Examiner Incharge, Hissar* stated that he examined the axle boxes of the affected Coach and found that they were in a satisfactory condition. The waste inside the journals was properly oil soaked and the front pads were in position. There was no evidence of any heating or charring of the pads in the axle boxes. He checked all the vacuum cylinders of the entire train and found them in good working order.

(vii) *Shri Chanan Singh, Assistant Station Master, Rewari* stated that rake of the 4 BRB Down Passenger of 31-10-1968 was cleaned at Rewari and he had seen that it was properly cleaned. TLR 1704 was properly swept before it left Rewari.

(viii) *Shri Prem Nath, Train Lighting Fitter, Rewari* stated that the Coach was not connected electrically with any other vehicle. He also stated that after checking, he had switched off the lights and fans of the Coach on the washing line at Rewari.

(ix) *Shri Audh Behari Lal, Deputy Chief Controller, Rewari* stated that the Guard of 4 BRB Down Passenger informed him about the fire from the site of the accident at 16.15 hours and also intimated that he was backing the train to Hissar where medical aid was available. He immediately instructed Assistant station Master Hissar to keep all medical aid ready and also to get as many Private and Civil Doctors as possible to attend to the injured.

(x) *Shri B.N. Bharadwaj, Circle Inspector (Fire), Delhi* stated that he examined the Luggage compartment of TLR 1704 on 2-11-1968. He found that fire had started near the left hand side sliding door. According to him, the fire was due to ignition of Kurbi by live bidi end or match-stick. He examined the axle boxes and the electrical connections and found that they were not the cause of starting the fire. He found a number of bidi ends and burnt match-sticks in the Luggage compartment.

(xi) *Dr. J. Mehta, Assistant Medical Officer, Hissar* stated that on receiving the information about the accident at 16.20 hours, he, along with other staff, immediately reported to the station platform and got the first aid equipment ready. 3 Doctors from the Civil hospital and 2 Private practitioners also arrived on the platform. Stretcher bearers, First-aiders were kept ready and immediately the train arrived, the injured passengers were attended to and then despatched by 2 Ambulance Cars and 2 Trucks to the Civil hospital. According to him, 9 persons had sustained injuries due to jumping out of the train, three due to burns as well as due to jumping out of the train and the rest had purely burn injuries.

(xii) *Shri S. P. Nag, Assistant Security Officer (Fire), New Delhi* was specially instructed by me to inspect Coach No. 1704 TLR. After examination, he found that there was very little damage to the Coach due to fire. He found burnt Sirkanda, Kurbi and sweet potatoes on the floor of the TLR and a large number of half-burnt bidi ends and match sticks. He examined the axle boxes and found that they were in order. He also examined the electrical fittings and found that there was no defect in the electrical system of the Coach. According to him, Sirkanda catches fire very quickly—almost as quickly as P. O. L. (Petrol, oil and Lubricants) products. In his opinion, the fire must have started by lighted bidi end or match-stick in the Sirkanda and then spread to Kurbi. He did not consider that it could have been due to a spark from the Engine.

(xiii) *Shri K. Raghunathan, Divisional Mechanical Engineer, Bikaner* stated that the Engine was fitted with a fall plate type spark arrestor. The coal used in the Engine was Grade I Bengal coal of the non-sparking type.

(xiv) *Shri G.L. Vaishnavi, Divisional Electrical Engineer, Bikaner* examined the Coach thoroughly and found that the dynamo, the batteries, the under frame wiring, the 24 way junction box, the fuses and the Coach wiring were all intact. There was no evidence anywhere of any loose connection or overheating. There were no patch repairs in the wiring. The lights and fans were off and there was no electrical load on the Coach and the batteries were well charged. This Coach was not electrically connected with any other vehicle. Therefore, the question of current being fed to this Coach or from this Coach to any other coach, did not arise. He stated that the primary maintenance diary of 31-10-1968, of this rake, showed that there was no earth leakage in TLR 1704 (I examined the primary maintenance diary and found the statement to be correct). The Coach was examined by a sensitive volt meter and it was found that the leakage was 2 volts on the positive side and about 3 volts on the negative side which values for a metal bodied coach indicate excellent condition of insulation.

(b) *Passengers of 4 BRB Down Train of 31-10-1968—*

(i) *Shri Vijay Singh* stated that he noticed a number of people smoking bidis. According to him the fire was first noticed near mile post No. 90/5 (approximately at Km. 146/3).

(ii) *Shri Ram Chander* stated that at Satrod, some people came into the front Luggage compartment with some Kurbi which later caught fire. He estimated that the fire broke out about 7 to 8 minutes after departure of the train from Hissar.

(iii) *Shri Ram Sukh* indicated that the fire broke out somewhere near Km. 146/3.

(iv) *Shri Shanker* stated that the fire broke out in the dry Krubi in the Luggage compartment somewhere close to a canal (at Km. 146/3).

(v) *Shri Phool Singh* stated that the train was proceeding at a good speed. He stated that there were about 50 people in the Luggage compartment. He also stated that there were a number of people smoking bidis. According to him, the fire started near Km. 146/3.

(vi) *Shri Jahangir Singh* estimated the number of people travelling in the compartment to be about 50. According to him, the fire broke out 5 to 7 minutes after the departure of the train from Hissar. He further stated that the bundle of grass and fodder which caught fire was loaded in the Luggage compartment by somebody at Satrod. The speed of the train at the time of the accident was normal. A number of people were smoking and in spite of his objection continued to smoke.

VI. DISCUSSION

12. *Time of the Accident*—The Guard stated that when the train stopped at the accident site he had noticed the time to be 15-48 hours. The train left Hissar at 15-37 hours and had thus taken 11 minutes to travel upto the point where it came to a stop. The Test Train by which I conducted the test took about 12 minutes to reach the same spot. Considering that the train which was involved in the accident consisted of only 7 coaches as against 8 coaches of the Test Train, I feel that 4 BRB Down Passenger must have come to a stop at 15-48 hours as stated by the Guard. According to the evidence of the passengers, the fire broke out somewhere near Km. 146/3. The Test Train took approximately 5½ minutes to travel from this spot to the place where the train stopped. It can reasonably be assumed that 4 BRB Down Passenger of 31-10-1968 took about the same or slightly less time to travel this distance. This, therefore, indicates

M/P(D)169M-FT&CA

that the fire must have broken out about 5 minutes before the train came to a stop. Some passengers travelling in this Luggage compartment estimated that the fire started about 5 to 7 minutes after the train left Hissar. Accepting, therefore, that the train left at 15.37 hours and stopped at the site of the accident at 15.48 hours, I am of the opinion that the fire started at 15.43 hours.

13. *Speed of the train*—The Driver estimated the speed of his train to be about 35 Km. p. h. when he made the emergency application of the brakes. The Driver stated that he had closed the regulator at about Km. 150/12 in order to stop at Nyoli Kalan Halt at Km. 152.6 where the train was booked to stop. On the Test Train which was driven by the same Driver, the regulator was closed at about the same Kilo-metragre and the speed of the train came down to about 35 Km. p.h. at the point where the Driver indicated that he had heard people shouting and had made emergency application of the brakes. From this point, it was noticed during my inspection of the site, that the train had travelled 650' till it came to a stop. Allowing for Driver's re-action time, the braking distance more or less tallies with the braking distance calculated on the accepted data for a speed of 35 Km. p.h. I, therefore, accept that the speed of the train was 35 Km.p. h.

14. *Cause of Fire*—(i) The evidence clearly establishes that the fire was due to the bundles of Kurbi and Sirkanda getting ignited. Kurbi, Sirkanda or any other variety of dried grass is inflammable. However, it is not one of the articles prohibited from being carried by passengers. In this connection, Rules 605, 606.1 and 606.2 of I. R. C. A. Coaching Tariff No. 19 brought into force from 15.1.1966, make specific provisions prohibiting carriage of explosives, dangerous and inflammable articles. The rules lay down that the articles mentioned under clause (1) to (4) of rule 605 viz :

- | | | | | | | | | | |
|-----|--|---|---|---|---|---|---|---|---|
| (1) | * | * | * | * | * | * | * | * | * |
| (2) | Explosives, dangerous and inflammable articles | | | | | | | | |
| (3) | * | * | * | * | * | * | * | * | * |
| (4) | * | * | * | * | * | * | * | * | * |

should under no circumstances be carried with passengers as luggage. Kurbi and Si kanda do not come under any of these rules. It is inflammable but the definition of inflammable solids as laid down in para 401 of Red Tariff No. 18 reads as under:—

- (a) substances other than explosives which are readily combustible or may cause or contribute to fires through friction ;
- (b) substances which are liable to spontaneous heating under normal conditions of transport or to heat up in contact with air and are then liable to catch fire ;
- (c) substances which by interaction with water are liable to become spontaneously inflammable or to give off inflammable gases in dangerous quantities.

Kurbi & Sirkanda cannot, therefore, be called inflammable by applying any of the above mentioned criteria. It was, therefore, being carried as luggage by some passenger. The Assistant Fire Officer who has vast experience and training in fire fighting, stated that Sirkanda was almost as inflammable as P.O.L. products. The means of ignition of Kurbi and Sirkanda must now be examined. It could get ignited by an electrical spark, a spark from the engine, due to hot axle or a lighted bidi or match-stick inadvertently thrown by some passenger.

(ii) The examination of the electrical gear of the Coach showed that the wiring and equipment underneath were completely intact. The 24 way junction box at the leading end of the Coach and the wiring taken from it along the roof were also completely intact. The connections were well made and all the fuses were in position and of proper size. There was no evidence of overheating of the wiring or the fuses anywhere. There was no earth fault in the Coach. No patch repairs were done in the wiring or any other portion of the electrical equipment. In fact, it was in as good a condition as when the Coach was built. After the accident, the entire equipment was tested and found to be in perfectly good working order with excellent insulation. The Coach was electrically not connected with any other vehicle. The lights and fans were off and there was no electrical load on the Coach at the time of the accident. The electrical spark, therefore, as a cause of igniting the Kurbi and Sirkanda can be eliminated.

(iii) The axle boxes were examined and it was found that the oiling of the axle boxes was properly done. The front pad was in position and properly soaked in oil. There was no evidence of heating or charring in any of the axle boxes. Therefore, hot axle as being the cause of the ignition can be ruled out.

(iv) The Engine was fitted with a fall plate type spark arrestor. The coal used was Gr. I Bengal coal which was of non-sparking type. The fire damper had been closed before the train left Hissar. Besides, the fire started at the loading end of the passage between the two sliding doors of the Luggage compartment. Taking all these factors into consideration, I am of the opinion that a spark from the Engine could not be the cause of igniting Kurbi and Sirkanda.

(v) The Coach was maintained and cleaned at Rewari before it started on its journey as a part of 4 BRB Down Passenger of 31-10-1968. On the 5th morning, I inspected the rake of 4 BRB Down Passenger which was ready to start from Rewari and found that the coaches were properly cleaned and there were no bidi ends or burnt match-sticks in the Luggage compartment. I, therefore, consider that when Coach No. 1704 TLR left Rewari on 31-10-1968, there were no bidi ends or burnt match-sticks in it. However, a number of them were found in it after the accident. Some passengers stated that a number of people were smoking bidis in the compartment. One of them said that the people continued smoking even after he objected to it. Therefore, the only inevitable conclusion is that the fire must have started due to some lighted bidi end or lighted match stick inadvertently thrown by some passenger. The fire caused panic, its dreaded consequence, amongst the passengers. The absence of means of communication between the passengers and the train crew also appears to have added to the panic. Therefore, no co-ordinated effort was made to put out the fire. The severity of the accident was thus enhanced.

15. *Could This Accident be Avoided*—(i) The Kurbi and Sirkanda were being carried as personal luggage. It caught fire due to lighted bidi end or match stick inadvertently thrown by some passenger. It does not, therefore, seem to be possible to have completely avoided the accident. However, severity of the accident could have been reduced, if the means of communication was available to the passengers when the fire broke out.

(ii) According to the Rules for opening of a Railway, all coaching vehicles have to be provided with the means of communication between the Passengers, Guard and Driver. Before opening of a Railway, a certificate has to be given by the General Manager in Form X, the relevant portion of which reads as under :—

* * * * *

(iii) "Every coaching vehicle constructed or procured for the use of Railway in mail or passenger trains is, and shall be provided with vacuum brake and effective means of communication between passengers Guard & Driver".

* * * * *

A Luggage compartment is not a coaching vehicle. Hence, no means of communication as described above is provided in it. The passengers, therefore, are prohibited from travelling in the Luggage compartments.

(iii) (a)—The Indian Railways Act lays down in Section 118 (2) that—

* * * * *

"if a passenger after being warned by railway servant to desist, persists in travelling on the roof, steps or foot board of any carriage or on an Engine, or in any other part of a train not intended for the use of passengers, he shall be punished".

(b) In the General and Subsidiary Rules, Rule No. 16 Pt. III lays down—

* * * * *

“No person, unless he is authorised by the authorised Officer, shall ride on the engine or tender, or in, under, or upon, any vehicle or portion of a vehicle not intended for the carriage of passengers”.

(iv) (a)—In this connection, the duties of the railway servants have been laid down in General Rule 115 which requires—

* * * * *

“The Guard in charge of a train with passenger vehicles attached shall not give the signal for starting until he has satisfied himself that no passenger is riding outside a carriage, and that, except in accordance with special instructions, no person is travelling in any compartment or vehicle not intended for the carriage of passengers.

* * * * *

(b)—Rule 19 of General and Subsidiary Rules Pt. II also requires that—

“Guards shall exert themselves to prevent any breach of the rules by passengers or other persons”.

(c)—The Operating Manual in para 4015B(xiv) lays down that—

“The Guard while working a passenger train shall also keep the windows and ventilators of all carriages running empty on his train closed and doors key locked”

(d) This particularly applied to the front TLR of 4 BRB Down Passenger as there was no luggage in the Luggage compartment. It should have been closed and locked according to this rule.

(e) Para 4015B(xvii) of the Operating Manual also lays down that—

“the Guard while working the passenger train shall see, in so far as is possible that there is no irregular or unauthorised travel by trains in contravention of any rules in force. All infringements of rules by passengers should be brought to the notice of the Station Master on duty and reported in the Joint Train Report”.

(v) Regarding the locking of Luggage vans, the Indian Railways Commercial Manual—para 939 reads as under:—

“all brake and luggage vans on passenger or parcel trains must be kept locked on both sides, whether there is any thing loaded in them or not, and must under no circumstances be opened except in the presence of the Guard/Brakesman who should keep all keys of locks in his personal possession”.

(vi) In addition to this, a Circular had been issued by the Divisional Superintendent on the Bikaner Division on 7-4-1967 which lays down—

“Please instruct all Guards headquartered at yours that they must personally lock up the Guard’s portion and also secure the empty Luggage compartment of the TLR which is not being used so that unauthorised persons may not be able to enter the same”.

(vii) Had these precautions been followed and the Luggage compartment kept properly closed and locked the fire, if any, had broken out due to Kurbi or Sirkanda getting ignited, it would have been in a coaching vehicle. The severity of the accident in that case might have been less as the means of communication would have been available to the passengers. Further, they might have noticed the fire hazard warning in the compartment stating—

“Please do not throw lighted matches or cigarette ends inside the compartment”.

On seeing this, they, perhaps, might have been more careful about throwing bidi ends and the fire might not have occurred. However, this possibility was very remote as normally passengers are habituated to throw bidi ends and match sticks inside the compartments.

VII. CONCLUSION

16. *Cause*—Having carefully considered all the evidence available and having minutely inspected the affected Coach, I have come to the conclusion that the fire in Coach No. NR 1704 TLR of 4 BRB Down Passenger train was caused by the ignition of Kurbi and Sirkanda carried in the Luggage compartment. The Kurbi and Sirkanda caught fire due to a live bidi or match stick thrown by some passenger.

17. *Responsibility*—(i) For the occurrence of fire, no responsibility is attributable to the Railway.

(ii) The severity of the accident might have been lessened, had the Guard locked the compartment as he was expected to do and prevented passengers from travelling in the Luggage compartment. To that extent, therefore, I hold Guard Sohan Lal responsible.

(iii) Guard Sohan Lal is 57 years old. He joined the Ex-Jodhpur State Railway on 1-12-1934 as a Siding Goods Clerk. He was taken-over by the Northern Railway along with the Jodhpur Railway on 22-9-1948. He was promoted as Guard on 1-3-1938 and has been a 'B' Grade Guard since 31-3-1954. He has received numerous punishments for minor irregularities such as booking false timing, over carriage of wagons etc.

18. *Relief Arrangements*—The train was backed to Hissar within an hour of the accident. The passengers were given first-aid at the site and received full medical attention immediately they reached Hissar. I am satisfied that the relief arrangements were prompt and adequate.

Yours faithfully,

(Sd.) C. R. SULE

Addl. Commissioner of Railway Safety, Northern Circle.

LUCKNOW-7

Dated 30-11-1968

Recommendations made by the Commission of Railway Safety in connection with accident due to Fire which occurred in 4 BRB Down Passenger between Hissar and Jakhod Khara stations, Northern Railway, on 31st October, 1968.

1. The Luggage compartments are not provided with means of communications and it is, therefore, essential to prevent passengers from travelling in the Luggage compartments. Rules regarding preventing passengers from travelling in the Luggage compartment and keeping the Luggage compartment locked already exist. It should be ensured that these are rigidly followed.

2. Kurbi, Sirkanda and such other varieties of dried grass etc., it is observed, are inflammable and it is, therefore, desirable that they be brought under the purview of Rules 605, 606 etc., of the I.R.C.A. Coaching Tariff and be prohibited from being carried as luggage by passengers.

Incidental Recommendations :

1. The 'C' Class Scale Medical equipment at Hissar is stored in a room with only one door. According to Railway Board's instructions, it should be stored in a room having two exits.

2. The 'C' Class Scale Medical equipment was incomplete. Certain items of the equipment had been indented for, but have not yet been received. It should be ensured that it is complete in all respects.

3. Guard, Sohan Lal denied having seen Divisional Superintendent, Bikaner's Circular No. 98 T-O/67 dated 7-4-1967. Verification of records showed that the acknowledgement from Guards regarding this circular had not been taken. It is essential that such important circulars should be properly acknowledged by all concerned staff and their acknowledgement kept on records.

Railway Board's views on the above noted recommendations/Incidental recommendations are :

1. Necessary instructions on the subject have been issued to the Railways vide Board's circular letter No. 68-TG II/1004/23 dated 27th December, 1968.

2. This is under examination and a further communication would follow.

Incidental Recommendations Nos. 1-3; Necessary action has been taken by the Railway to comply with these items.